

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

aSD11.A48

DE FOR
APPRAISING DOWNED WOODY FUELS
IN MONTANA FORESTS:

Interior Ponderosa Pine,
Ponderosa Pine - Larch - Douglas-Fir,
Larch - Douglas-Fir, and
Interior Douglas-Fir Cover Types

William C. Fischer



INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
OGDEN, UTAH 84401

SD
11
.A2525
No. 97

THE AUTHOR

WILLIAM C. FISCHER is a research forester for the Fire Effects and Use Research and Development Program, at the Northern Forest Fire Laboratory. His current assignment is to develop techniques and procedures for applying existing research knowledge to the task of producing improved operational fire management plans, with special emphasis on fire use, fuel treatment, and fuel management plans. Mr. Fischer received his bachelor's degree in forestry from the University of Michigan in 1956. From 1956 to 1966, he did Ranger District and forest staff work in timber management and fire control on the Boise National Forest.

RESEARCH SUMMARY

Two series of color photographs show different levels of downed woody material resulting from natural processes in two forest cover types in Montana. Each photo is supplemented by inventory data describing the size, weight, volume, and condition of the debris pictured. A subjective evaluation of potential fire behavior under an average bad fire weather situation is given.

Instructions are provided for using the photos to describe fuels and to evaluate potential fire hazard.

PHOTO GUIDE FOR APPRAISING DOWNED WOODY FUELS IN MONTANA FORESTS:

Interior Ponderosa Pine,
Ponderosa Pine-Larch-Douglas-Fir,
Larch-Douglas-Fir, and
Interior Douglas-Fir Cover Types

Property of
the U.S. Forest Service

William C. Fischer

INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
OGDEN, UTAH 84401

FSSTO

ACKNOWLEDGMENTS

The fire behavior potential ratings assigned to the photos in this guide are the result of on-site evaluation by the following fire managers and researchers:

Donald E. Abbott, Deerlodge National Forest
 George F. Bissonette, Kootenai National Forest
 Dr. James K. Brown, Northern Forest Fire Laboratory
 Fred L. Cavill, Lolo National Forest
 Farrell G. Cooper, Lolo National Forest
 Ronald G. Curtiss, Kootenai National Forest
 Walter L. De Zell, Bitterroot National Forest
 John B. Dillon, Kootenai National Forest
 Wyatt W. Frost, Bitterroot National Forest
 Horace F. Goodwin, Custer National Forest
 Del Goss, Helena National Forest
 Patrick F. Hartless, Northern Forest Fire Laboratory
 Roger O. Hearst, Lolo National Forest
 Jerry A. Hinman, Bitterroot National Forest
 Robert Kellogg, Helena National Forest

Douglas H. Mackay, Lewis and Clark National Forest
 Jerrald W. Miller, Lolo National Forest
 Robert W. Mutch, Lolo National Forest
 Dr. Rodney A. Norum, Northern Forest Fire Laboratory¹
 John V. Puckett, Northern Region Aviation and Fire Management
 Delmar L. Radtke, Northern Region Timber Management
 Charles E. Rodgers, Lolo National Forest
 Everett Stiger, Helena National Forest
 Russell H. Trostad, Lewis and Clark National Forest
 Walter J. Tomascak, Custer National Forest
 Don V. Williams, Northern Region Aviation and Fire Management (Retired)
 Jerry Williams, Montana State Division of Forestry

The author gratefully acknowledges the help received from these men and thanks them for their willingness to share their expertise. Nonan V. Noste, Northern Forest Fire Laboratory, conducted many of the fire behavior potential rating sessions. His help is also gratefully acknowledged.

¹Subsequently assigned to Institute of Northern Forestry, Fairbanks, Alaska.

CONTENTS

PURPOSE OF PHOTO SERIES	1
USING THE PHOTOS	1
Arranging the Photos	1
The Data Sheet	2
Describing the Fuel Complex	2
Rating Fire Potential	3
PHOTO GUIDE DEVELOPMENT	5
PUBLICATIONS CITED	6
SERIES 1 - INTERIOR PONDEROSA PINE SAF COVER TYPE 237	9
SERIES 2 - PONDEROSA PINE - LARCH - DOUGLAS-FIR SAF COVER TYPE 214	31
SERIES 3 - LARCH - DOUGLAS-FIR SAF COVER TYPE 212	57
SERIES 4 - INTERIOR DOUGLAS-FIR SAF COVER TYPE 210	95

PURPOSE OF PHOTO SERIES

This photo guide contains information that can be used to appraise the dead woody debris on the forest floor of interior ponderosa pine, ponderosa pine - larch - Douglas-fir, larch - Douglas-fir, and interior Douglas-fir. The guide is primarily for natural (non-slash) fuels, although some of the photos include old logging and thinning slash. Natural fuels result from wind, snow, and mechanical breakage, natural pruning of lower branches, needle fall, windthrow, blow-down, and the falling of trees killed by insects, disease, fire, and competition for light and moisture. The old logging and thinning slash shown has either been treated or left untreated. It can therefore be considered a part of the natural fuel complex.

This guide is designed to help forest managers describe the deadwood on the forest floor, to estimate the amount of such material, and to evaluate its fire hazard. The photos show a variety of fuel situations that exist in ponderosa pine, western larch, and Douglas-fir forests in Montana and surrounding Northern Rocky Mountain areas.

The fuel appraisal obtained from this guide can be used to plan fire management strategies including fire prevention, fuel treatment, prescribed fire, dispatch-

ing for fire suppression, and establishing criteria for unscheduled prescribed fires.

The photos provide a relatively quick and inexpensive aid for accomplishing fuel appraisal over large forested areas. Although the precision of this procedure is unknown, it is expected to be intermediate: less than standard fuel inventory but greater than designating a stylized fuel model such as used in the National Fire Danger Rating System.

Perhaps the strongest feature of this series is the fire potential rating with each photo. Alternative methods for evaluating fire potential are generally unavailable, and those methods that do exist are outdated or not well suited for rating nonuniform fuel situations.

USING THE PHOTOS Arranging the Photos

The photos and accompanying data sheets are presented in four series, one for each cover type:

- Series 1—Interior ponderosa pine cover type.
- Series 2—Ponderosa pine - larch - Douglas-fir cover type.
- Series 3—Larch - Douglas-fir cover type.
- Series 4—Interior Douglas-fir cover type.

Within each series, the photos are arranged according to total fuel loading. The first photo in each series shows the lightest fuel load, the last shows the heaviest load.

The Data Sheet

The fuel complex shown in each photo is described on an accompanying data sheet in terms of the following characteristics:

1. Forest cover type.
2. Montana habitat type.
3. Stand and site data: age of overstory dominants, average slope, aspect, elevation, and fire ecology group.
4. Down and dead woody fuel loadings by size class.
5. Other fuel data: average duff depth and for fuels 3 inches (7.62 cm) in diameter and greater, the average diameter, the percent rotten, and the volume of sound material.
6. National Fire Danger Rating System fuel model.
7. Stylized fuel model.

Symbols used for forest vegetation are the standard symbols for Northern Region plants (USDA Forest Service 1969). The symbols represent the first two letters of the generic name and the first two letters of

the specific name of the plant species (such as PIPPO - *Pinus ponderosa*).

Describing the Fuel Complex

Several important fuel characteristics can be seen in each photo: (1) The amount of fuel in the different diameter classes, (2) the general condition of the fuel (sound versus rotten), (3) the distribution of the fuel over the area, and (4) the depth of the fuel (each black and white section on the plot marker is 1 foot [0.3048 m]). Consequently, the manager can use the photos to estimate values for these characteristics of woody debris on the forest floor.

To use the photos to describe downed woody fuels, simply inspect the fuel complex and then select the photo that most nearly compares with what is on the ground. Then use the information on the data sheet to describe the observed fuel complex.

Perhaps no one photo adequately represents the actual situation. If this is the case, select two photos that bracket the observed fuel complex and then interpolate between the values on the data sheets accompanying the selected photos.

Rather than trying to select one photo or a pair of photos that best reflects the entire fuel complex, the

user could describe each of the above-mentioned fuel characteristics separately. This could be done by using the following procedure suggested by Maxwell and Ward (1976a, 1976b) as adapted by Koski and Fischer (1979):

1. Observe each of the characteristics of the fuel complex on the ground.
2. For each characteristic, select the photo that most nearly matches, or photos that bracket the observed situations.
3. For each characteristic, obtain a value from the data sheet accompanying the selected photo (or interpolate a value if a pair of photos was selected).

The above procedure should only be used when a single photo or a pair of photos can't be used to describe the observed situation. For most fuel situations, any improvement in estimates obtained by rating each fuel characteristic separately is not justified by the increased time it takes to get them.

These procedures refer to use of the photos at a specific point. This can be a representative point and the results applied to an entire forest stand. This method is satisfactory when the fuels are uniform throughout the stand. It will be difficult to select a representative point in many stands. The photos can be used to sample stands when nonuniform fuels

preclude the selection of a representative point. The procedure is as follows:

1. Establish 10 or more points, spread systematically through the stand.
2. At each point evaluate the fuels within clear eyesight.
3. Summarize the results as a simple average for the stand or express the results as the percent of area in several classes (for example, 40 percent of stand >10 tons/acre, 60 percent of stand <30 tons/acre).

Rating Fire Potential

The data sheet for each photo contains adjective ratings for five different expressions of fire behavior: rate of spread, intensity, torching, crowning, and resistance to control. An overall fire behavior potential rating is also given for the fuel complex pictured. The ratings are for an "average bad" fire weather situation defined as: 80°-90° F temperature (27°-32° C), 15-20 percent relative humidity, 10-15 mi/h windspeed (16-24 km/h), and 4 weeks since a significant rain (0.10 inch [0.25 cm] or greater).

This approach to estimating fire potential is not without precedent in the Northern Rocky Mountains. In many ways it is a refinement of the time tested concept of fuel rating introduced more than 40 years ago by L. G. Hornby (1936).

The adjective ratings nil, low, medium, high, and extreme are defined as follows for each of the different expressions of fire behavior:

Rate of Spread

Nil—fire cannot sustain itself.

Low—spread will be slow and discontinuous.

Medium—uniform spread possible, but can be stopped by aggressive ground attack with hand tools.

High—spread will be rapid; indirect attack on fire front may be required for control.

Extreme—spread will be explosive; little chance of control until weather changes.

Intensity

Nil—fire cannot sustain itself.

Low—cool fire; very little hot spotting required for control.

Medium—fire will burn hot in places; aggressive hot spotting with hand tools likely to be successful.

High—too hot for sustained direct attack with hand tools; aerial tankers or large ground tanker required to cool fire front.

Extreme—direct ground attack not possible; air or ground tanker attack likely to be ineffective.

Torching

Nil—no chance of torching.

Low—occasional tree may torch-out.

Medium—pole-sized understory trees likely to torch-out.

High—Most of understory and occasional overstory trees likely to torch-out.

Extreme—entire stand likely to torch-out.

Crowning

Nil—sustained spread in crowns will not occur.

Low—sustained spread in crowns unlikely.

Medium—some crowning likely but will not be continuous.

High—sustained crowning likely.

Extreme—sustained crowning will occur.

Resistance to Control

Nil—no physical impediments to line building and holding.

Low—occasional tough spots but not enough to cause serious line building and holding problems.

Medium—hand line construction will be difficult and slow, but dozers can operate without serious problems.

High—slow work for dozers, very difficult for hand crews; hand line holding will be difficult.

Extreme—neither dozers nor hand crews can effectively build and hold line.

Overall

Nil—fire will not sustain itself.

Low—fire can be easily controlled by several smokechasers with hand tools.

Medium—aggressive crew-sized (6-10 persons) initial attack required for successful control.

High—aggressive crew-sized (25 persons) initial attack with substantial reinforcement required for successful control; 10 percent chance that initial control action will fail.

Extreme—90 percent chance that initial control action will fail.

Procedures for using the photos to estimate fire potential are the same as those given for describing the fuel complex.

PHOTO GUIDE DEVELOPMENT

This photo guide was developed using the technique explained by Fischer (1981), which involved the following steps:

1. The fuel complexes photographed were selected to represent the range of fuel situations observed to

exist for the cover type in Montana.

2. Sample plots are generally laid out and photographed in accordance with procedures suggested by USDA Forest Service (1975).

3. Fuels were sampled and described using fuel inventory and computational techniques developed by Brown (1974).

4. Habitat types are according to Pfister and others (1977). Cover types are according to SAF (1954).

5. Fire potential ratings are based on subjective evaluation by experienced fire managers using the adjective ratings and definitions in the preceding section of this guide.

6. National Fire Danger Rating fuel model assignment was by the author using definitions provided by Deeming and others (1977). Stylized fuel model assignment was by the author using definitions provided by Albini (1976).

7. The fire ecology group assignment was by the author using the definitions provided by Davis and others (1980).

8. Stand and site data were obtained using standard forestry field techniques.

PUBLICATIONS CITED

- Albini, Frank A.
1976. Estimating wildfire behavior and effects. USDA For. Serv. Gen. Tech. Rep. INT-30, 92 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.
- Brown, James K.
1974. Handbook for inventorying downed woody material. USDA For. Serv. Gen. Tech. Rep. INT-16, 24 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.
- Davis, Kathleen M., Bruce D. Clayton, and William C. Fischer.
1980. Fire ecology of Lolo National Forest habitat types. USDA For. Serv. Gen. Tech. Rep. INT-79, 77 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.
- Deeming, John E., Robert E. Burgan, and Jack D. Cohen.
1977. The National Fire-Danger Rating System - 1978. USDA For. Serv. Gen. Tech. Rep. INT-39, 63 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.
- Fischer, William C.
1981. Photo guides for appraising downed woody fuels in Montana forests: how they were made. USDA For. Serv. Res. Note INT-299, 12 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.
- Hornby, L. G.
1936. Fire control planning in the northern Rocky Mountain region. USDA For. Serv. Progr. Rep. 1, 179 p. North. Rocky Mt. For. and Range Exp. Stn., Missoula, Mont.
- Koski, Wayne H., and William C. Fischer.
1979. Photo series for appraising thinning slash in north Idaho. USDA For. Serv. Gen. Tech. Rep. INT-46, 49 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.
- Maxwell, Wayne G., and Franklin R. Ward.
1976a. Photo series for quantifying forest residues in the: coastal Douglas-fir — hemlock type, coastal Douglas-fir — hardwood type. USDA For. Serv. Gen. Tech. Rep. PNW-51, 103 p. Pac. Northwest For. and Range Exp. Stn., Portland, Ore.
- Maxwell, Wayne G., and Franklin R. Ward.
1976b. Photo series for quantifying forest residues in the: ponderosa pine type, ponderosa pine and associated species type, lodgepole pine type. USDA For. Serv. Gen. Tech. Rep. PNW-52, 73 p. Pac. Northwest For. and Range Exp. Stn., Portland, Ore.
- Pfister, Robert D., Bernard L. Kovalchik, Stephen F. Arno, and Richard C. Presby.
1977. Forest habitat types of Montana. USDA For. Serv. Gen. Tech. Rep. INT-34, 174 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.

- Society of American Foresters (SAF).
1954. Forest cover types of North America. 67 p. Society of American Foresters, Washington, D.C. USDA Forest Service.
1975. National fuel classification and inventory system, preliminary draft. 61 p. Washington, D.C. USDA Forest Service.
1969. Standard symbols and common names for plants of the Northern Region. R1-2210-15 (revised 9/69), Reg. 1, Missoula, Mont.

SERIES 1

INTERIOR PONDEROSA PINE

SAF COVER TYPE 237



DATA SHEET

Stand No. 24

FOREST COVER TYPE: SAF NO. 237 Interior ponderosa pine
MONTANA HABITAT TYPE: NO. 142 Ponderosa pine/Idaho fescue-Idaho fescue phase (PIPO/FEID-FEID)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.5 in 3.81 cm		Based on an average bad day: 85-90 ° temp., 15-20% RH., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0	0	Average diameter, 3 + fuels: 4.0 in		Rate of Spread: Low	
0.25-1	0.6	0.13	10.16 cm		Intensity: Low	
1-3	0.4	0.09	Percent rotten, 3 + fuels: 0 %		Torching: Low	
Subtotal 0-3 1.0 0.22			Volume of sound 3+fuels: 9 ft ³ /ac 0.6 m ³ /ha		Crowning: nil	
3-6 0.1 0.02					Resistance to control: Low	
6-10 0 0					Overall Fire Potential LOW	
10-20 0 0						
20+ 0 0						
SUBTOTAL 3+ 0.1 0.02						
TOTAL 1.1 0.24						
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	STAND AND SITE DATA			
U		9	Age of overstory dominants: PIPO 137 yrs			
			Aspect: south			
			Elevation: 3100 ft 945 m			
			Average slope: 10 %			
			Remarks: Fire Ecology Group Two			
			Photo taken: 9/24/76			
			By: W. C. Fischer			
			National Forest: Lolo			
			Ranger District: Ninemile			
			Drainage: Ninemile Cr.			



DATA SHEET

Stand No. 18

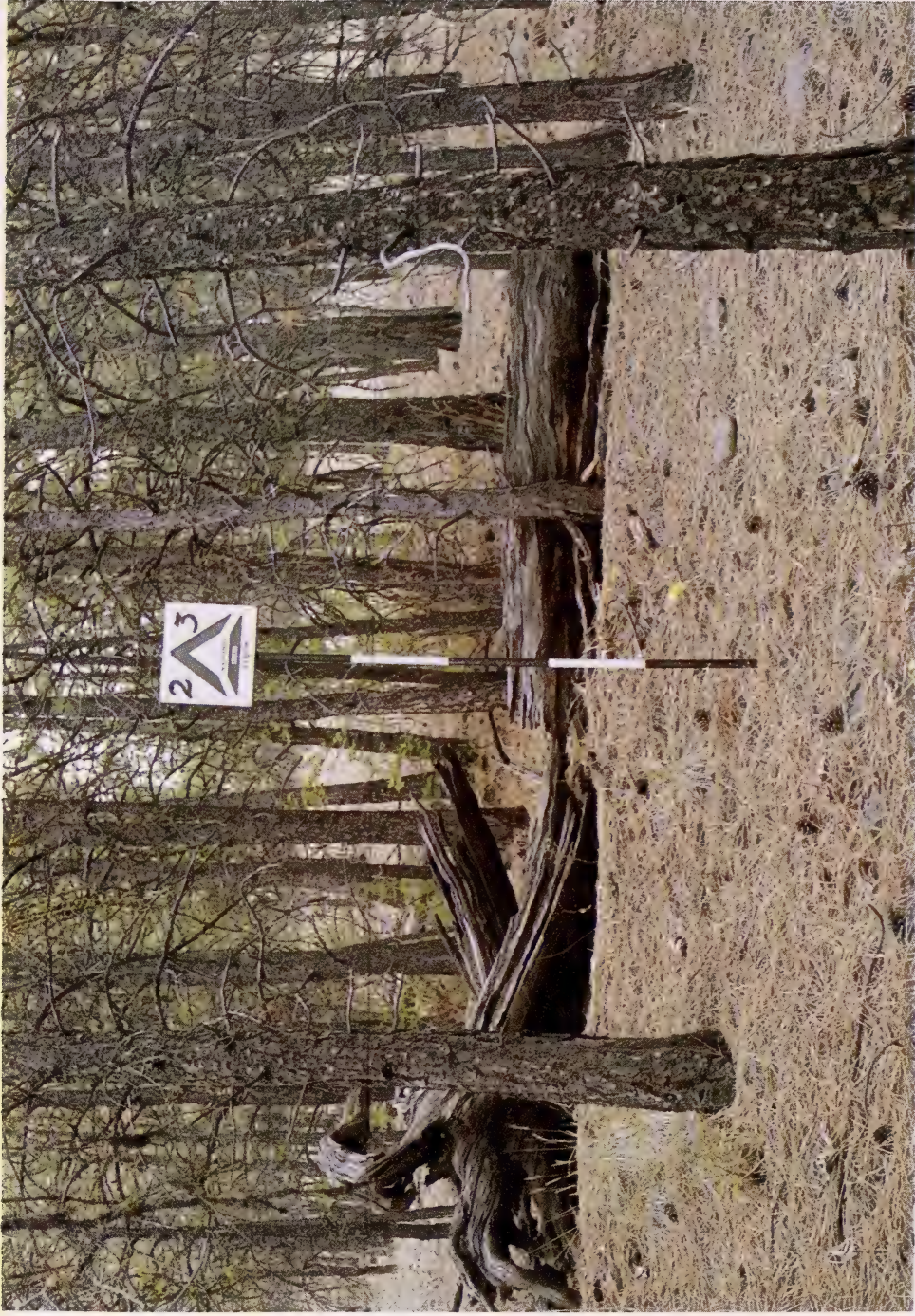
FOREST COVER TYPE: SAF NO. 237Interior ponderosa pine

MONTANA HABITAT TYPE: NO. 313Douglas-fir/snowberry-snowberry phase (PSME/SYAL-SYAL)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.3	0.07	Average duff depth: 0.7 in 1.78 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0.25-1	0.6	0.13	Average diameter, 3 + fuels: 4.0 in 10.16 cm		Rate of Spread: medium Intensity: low Torching: nil Crowning: low Resistance to control: low	
1-3	1.1	0.25	Percent rotten, 3 + fuels: 11 %			
Subtotal 0-3	2.0	0.45	Volume of sound 3 + fuels: 85 ft ³ /ac 6.0 m ³ /ha			
3-6	0.7	0.16				
6-10	0.4	0.09				
10-20	0	0				
20+	0	0				
SUBTOTAL 3+	1.1	0.25				
TOTAL	3.1	0.70				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
C/U		2/9				

STAND AND SITE DATA	
Age of overstory dominants: PIPO	87 yrs
PSME	67 yrs
Average slope: 20 % Aspect: west Elevation: 3210 ft 978 m	
Remarks: Fire Ecology Group Six	

STAND LOCATION	
National Forest:	Lolo
Ranger District:	Ninemile
Drainage:	Mill Cr.
Photo taken:	9/22/76
By:	W. C. Fischer



DATA SHEET

Stand No. 23

FOREST COVER TYPE: SAF NO. 237 Interior ponderosa pine
MONTANA HABITAT TYPE: NO. 130 Ponderosa pine/bluebunch wheatgrass (PIPO/AGSP)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 0.6 in 1.52 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2	0.04	Average diameter, 3 + fuels: 4.9 in		Rate of Spread: medium	
0.25-1	0.3	0.07	12.45 cm		Intensity: low	
1-3	0.9	0.20	Percent rotten, 3 + fuels: 13 %		Torching: low	
Subtotal 0-3	1.4	0.31	Volume of sound 3 + fuels: 171 ft ³ /ac 12.0 m ³ /ha		Crowning: low	
3-6	1.1	0.25			Resistance to control: low	
6-10	0.3	0.07			Overall Fire Potential LOW	
10-20	1.0	0.22				
20 +	0	0				
SUBTOTAL 3 +	2.4	0.54				
TOTAL	3.8	0.85				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL		STAND LOCATION		
				National Forest: Lolo		
				Ranger District: Ninemile		
				Drainage: Ninemile Cr.		
				Photo taken: 9/24/76		
				By: W. C. Fischer		
U		9		Remarks: Fire Ecology Group Two		



DATA SHEET

Stand No. 33A

FOREST COVER TYPE: SAF NO. 237 Interior ponderosa pine

MONTANA HABITAT TYPE: NO. 171 Ponderosa pine/snowberry-creeping Oregon grape phase (PIPO/SYAL-BERE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.7 in 4.32 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.3	0.07	Average diameter, 3+fuels:	8.9 in 22.61 cm	Rate of Spread:	high
0.25-1	1.0	0.22	Percent rotten, 3+fuels:	87 %	Intensity:	high
1-3	0.5	0.11	Volume of sound 3+fuels:	42 ft ³ /ac 2.9 m ³ /ha	Torching:	high
Subtotal 0-3	1.8	0.40			Crowning:	extreme
3-6	0.5	0.11			Resistance to control:	medium
6-10	0.2	0.04			Overall Fire Potential	HIGH
10-20	3.2	0.72			STAND LOCATION	
20+	0	0			National Forest:	Custer
SUBTOTAL 3+	3.9	0.87			Ranger District:	Ft. Howes
TOTAL	5.7	1.27			Drainage:	Stocker Branch Cr.
NFORS FUEL MODEL			STYLIZED FUEL MODEL			
U			9			
Remarks:			Photo taken: 8/9/78 By: W. C. Fischer			



DATA SHEET

Stand No. 30A

FOREST COVER TYPE: SAF NO. 237 Interior ponderosa pine

MONTANA HABITAT TYPE: NO. 171 Ponderosa pine/snowberry-creeping Oregon grape phase (PIPO/SYAL-BERE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.1 in 2.79 cm	Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2	0.04	Average diameter, 3+fuels:	5.8 in	Rate of Spread: medium	
0.25-1	0.6	0.13		14.73 cm	Intensity: medium	
1-3	1.9	0.43	Percent rotten, 3+fuels:	79 %	Torching: medium	
			Volume of sound 3+fuels:	67 ft ³ /ac 4.7 m ³ /ha	Crowning: medium	
Subtotal 0-3	2.7	0.60			Resistance to control: medium	
3-6	0.7	0.16	Overall Fire Potential MEDIUM			
6-10	2.4	0.54	STAND AND SITE DATA			
10-20	0.9	0.20	Age of overstory dominants: 60 yrs			
20+	0	0	PIPO			
SUBTOTAL 3+	4.0	0.90	Average slope: 5 %			
TOTAL	6.7	1.50	Aspect: northeast			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Elevation: 4460 ft 1359 m			
U	9		Remarks: Fire Ecology Group Three			

National Forest: Custer

Ranger District: Ft. Howes

Drainage: Stocker Branch Cr.

Photo taken: 8/9/78

By: W. C. Fischer



DATA SHEET

Stand No. 32A

FOREST COVER TYPE: SAF NO. 237 Interior ponderosa pine
MONTANA HABITAT TYPE: NO. 141 Ponderosa pine/Idaho fescue-Idaho fescue phase (PIPO/FEID-FEID)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight T/ac Kg/m ²	Average duff depth: 1.1 in 2.79 cm		Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5 0.11	Average diameter, 3+fuels: 4.3 in		Rate of Spread: high	
0.25-1	1.9 0.43	10.92 cm		Intensity: high	
1-3	4.5 1.01	Percent rotten, 3+fuels: 53 %		Torching: high	
Subtotal 0-3	6.9 1.55	Volume of sound 3+fuels: 130 ft ³ /ac 9.1 m ³ /ha		Crowning: high	
3-6	1.0 0.22	STAND AND SITE DATA		Resistance to control: medium	
6-10	2.5 0.56	Age of overstory dominants: PIPO 58 yrs		Overall Fire Potential HIGH	
10-20	0 0			STAND LOCATION	
20+	0 0			National Forest: Custer	
SUBTOTAL 3+	3.5 0.78			Ranger District: Ft. Howes	
TOTAL	10.4 2.33			Drainage: Stocker Branch Cr.	
NFORS FUEL MODEL	STYLIZED FUEL MODEL	Average slope: 3 % Aspect: southwest Elevation: 4180 ft 1274 m		Photo taken: 8/9/78	
G	10	Remarks: Fire Ecology Group Two		By: W. C. Fischer	



DATA SHEET

FOREST COVER TYPE: SAF NO.

237

Stand No.

17

MONTANA HABITAT TYPE: NO.

313

Interior ponderosa pine

Douglas-fir/snowberry-snowberry phase (PSME/SYAL-SYAL)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 2.7 in 6.86 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.1	0.02	Average diameter, 3+fuels: 4.3 in 10.92 cm		Rate of Spread: medium	
0.25-1	1.1	0.25			Intensity: low	
1-3	2.7	0.61	Percent rotten, 3+fuels: 5 %		Torching: nil	
			Volume of sound 3+fuels: 494 ft ³ /ac 34.6 m ³ /ha		Crowning: nil	
Subtotal 0-3	3.9	0.88			Resistance to control: low	
3-6	4.2	0.94			Overall Fire Potential LOW	
6-10	2.3	0.52				
10-20	0	0				
20+	0	0				
SUBTOTAL 3+	6.5	1.46				
TOTAL	10.4	2.34				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	STAND LOCATION			
U		9	National Forest: LoLo			
			Ranger District: Ninemile			
			Drainage: Mill Cr.			
			Photo taken: 9/22/76			
			By: W. C. Fischer			
			Remarks: Fire Ecology Group Two			



DATA SHEET

Stand No. 31A

FOREST COVER TYPE: SAF NO.

237

Interior ponderosa pine

MONTANA HABITAT TYPE: NO.

141

Ponderosa pine/Idaho fescue-Idaho fescue phase (PIPO/FEID-FEID)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING		
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.2	0.04	Average duff depth: 0.8 in		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0.25-1	0.4	0.09	Average diameter, 3 + fuels: 7.5 in		Rate of Spread: high	
1-3	0.7	0.16	Percent rotten, 3 + fuels: 80 %		Intensity: high	
Subtotal 0-3	1.3	0.29	Volume of sound 3 + fuels: 154 ft ³ /ac		Torching: high	
			10.8 m ³ /ha		Crowning: high	
					Resistance to control: medium	
3-6	1.0	0.22			Overall Fire Potential HIGH	
6-10	2.9	0.65				
10-20	5.5	1.23				
20+	0	0				
SUBTOTAL 3+	9.4	2.10				
TOTAL	10.7	2.39				
STYLIZED FUEL MODEL		STAND AND SITE DATA				
		Age of overstory dominants: 148 yrs				
		Average slope: 7 %				
		Aspect: northeast				
		Elevation: 4160 ft 1268 m				
		Remarks: Fire Ecology Group Two				
NFDRS FUEL MODEL		STAND LOCATION				
		National Forest: Custer				
		Ranger District: Ft. Howes				
		Drainage: Stocker Branch Cr.				
		Photo taken: 8/9/78				
		By: W. C. Fischer				

U

9



DATA SHEET

FOREST COVER TYPE: SAF NO. 237

Stand No. 29A

Interior ponderosa pine

MONTANA HABITAT TYPE: NO. 141

Ponderosa pine/Idaho fescue-Idaho fescue phase (PIPO/FEID-FEID)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING		
Size Class (Inches)	T/ac	Weight Kg/m ²					
0-0.25	0.2	0.04	Average duff depth: 0.4 in		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain		
0.25-1	1.3	0.29	Average diameter, 3 + fuels: 4.5 in		Rate of Spread: medium		
1-3	3.2	0.72	Percent rotten, 3 + fuels: 29 %		Intensity: low		
			Volume of sound 3 + fuels: 381 ft ³ /ac		Torching: nil		
Subtotal 0-3	4.7	1.05	26.7 m ³ /ha		Crowning: nil		
					Resistance to control: low		
3-6	3.4	0.76			Overall Fire Potential LOW		
6-10	0.9	0.20					
10-20	2.4	0.54					
20 +	0	0					
SUBTOTAL 3 +	6.7	1.50					
TOTAL	11.4	2.55					
NEDRS FUEL MODEL		STYLIZED FUEL MODEL					
C	2						
			Age of overstory dominants: PIPO 100 yrs		STAND LOCATION		
					National Forest: Custer		
					Ranger District: Ft. Howes		
					Drainage: Cow Cr.		
			Average slope: 7 %		Photo taken: 8/9/78		
			Aspect: northwest		By: W. C. Fischer		
			Elevation: 4450 ft 1350 m				
			Remarks: old burn				
			Fire Ecology Group Two				



DATA SHEET

Stand No. 72

FOREST COVER TYPE: SAF NO. 237 Interior ponderosa pine

MONTANA HABITAT TYPE: NO.		
171	Ponderosa pine/snowberry-snowberry phase	(PIPO/SYAL-SYAL)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight T/ac	Kg/m ²	Average duff depth: <u>2.1</u> in <u>5.33</u> cm		Based on an average bad day: 85-90 ° temp., 15-20% RH, 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.1	0.02	Average diameter, 3+fuels: <u>4.4</u> in		Rate of Spread: <u>medium</u>	
0.25-1	2.2	0.49	<u>11.18</u> cm		Intensity: <u>medium</u>	
1-3	4.4	0.99	Percent rotten, 3+fuels: <u>55</u> %		Torching: <u>high</u>	
Subtotal 0-3	6.7	1.50	Volume of sound 3+fuels: <u>355</u> ft ³ /ac <u>24.8</u> m ³ /ha		Crowning: <u>high</u>	
3-6	5.3	1.19	STAND AND SITE DATA Age of overstory dominants: PIPO <u>80</u> yrs		Resistance to control: <u>low</u>	
6-10	2.3	0.52			Overall Fire Potential <u>MEDIUM</u>	
10-20	2.1	0.47			STAND LOCATION	
20+	0	0			National Forest: <u>Lolo</u>	
SUBTOTAL 3+	9.7	2.18			Ranger District: <u>Missoula</u>	
TOTAL	16.4	3.68			Drainage: <u>Woods Gulch</u>	
NFDRS FUEL MODEL	STYLIZED FUEL MODEL		Average slope: <u>26</u> % Aspect: <u>southeast</u> Elevation: <u>3880</u> ft		Photo taken: <u>7/27/77</u>	
G	10		Remarks: <u>Fire Ecology Group Two</u>		By: <u>W. C. Fischer</u>	

SERIES 2

PONDEROSA PINE - LARCH - DOUGLAS-FIR

SAF COVER TYPE 214



DATA SHEET

Stand No. 76

FOREST COVER TYPE: SAF NO. 214 Ponderosa pine - larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 261 Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.0 in 2.54 cm	Based on an average bad day: 85-90° temp., 15-20% RH, 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.1	0.02	Average diameter, 3 + fuels:	3.9 in	Rate of Spread:	Low
0.25-1	0.9	0.20		9.91 cm	Intensity:	Low
1-3	0.8	0.18	Percent rotten, 3 + fuels:	65 %	Torching:	Low
			Volume of sound 3 + fuels:	20 ft ³ /ac 1.4 m ³ /ha	Crowning:	Low
Subtotal 0-3	1.8	0.40			Resistance to control:	Low
3-6	0.6	0.13	Overall Fire Potential LOW			
6-10	0.1	0.02	STAND AND SITE DATA			
10-20	0	0	Age of overstory dominants: PIPO 214 yrs			
20+	0	0	PSME 57 yrs			
SUBTOTAL 3+	0.7	0.15				
TOTAL	2.5	0.55	Average slope: 10 % Aspect: southwest Elevation: 4900 ft 1494 m			
NFDRS FUEL MODEL		Remarks: Fire Ecology Group Six				
C/U		2/9				

National Forest: Lolo

Ranger District: Missoula

Drainage: Woods Gulch

Photo taken: 7/27/77

By: W. C. Fischer



DATA SHEET

FOREST COVER TYPE: SAF NO. 214 Stand No. 69

MONTANA HABITAT TYPE: NO. 261 Ponderosa pine - larch - Douglas-fir
Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.5 in 3.81 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.3	0.07	Average diameter, 3+fuels: 5.1 in		Rate of Spread: medium	
0.25-1	0.8	0.18	12.95 cm		Intensity: medium	
1-3	0.3	0.07	Percent rotten, 3+fuels: 38 %		Torching: high	
			Volume of sound 3+fuels: 56 ft ³ /ac 3.9 m ³ /ha		Crowning: medium	
Subtotal 0-3	1.4	0.32			Resistance to control: medium	
			STAND AND SITE DATA		Overall Fire Potential MEDIUM	
			Age of overstory dominants: 125 yrs		STAND LOCATION	
			PSME 55 yrs		National Forest: Lolo	
					Ranger District: Missoula	
					Drainage: Rattlesnake Cr.	
SUBTOTAL 3+			1.1 0.24			
TOTAL			2.5 0.56			
NFDPS FUEL MODEL		STYLIZED FUEL MODEL				
H		8				
			Average slope: 23 %		Photo taken: 7/15/77	
			Aspect: southwest		By: W. C. Fischer	
			Elevation: 3780 ft 1152 m			
			Remarks: Fire Ecology Group Six			



DATA SHEET

Stand No. 80

FOREST COVER TYPE: SAF NO. 214, Ponderosa pine - larch - Douglas-fir
MONTANA HABITAT TYPE: NO. 293, Douglas-fir/twinflower-blue huckleberry phase (PSME/LIBO-VAGL)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.3	0.07	Average duff depth: 1.5 in 3.81 cm	Based on an average bad day: 85-90 ° temp., 15-20% RH., 10-15 mi/h wind, 4 weeks since rain		
0.25-1	0.8	0.18	Average diameter, 3 + fuels: 4.3 in 10.92 cm	Rate of Spread: medium		
1-3	0.7	0.16	Percent rotten, 3 + fuels: 74 %	Intensity: medium		
Subtotal 0-3	1.8	0.41	Volume of sound 3 + fuels: 42 ft ³ /ac 2.9 m ³ /ha	Torching: high		
3-6	0.8	0.18	Overall Fire Potential			MEDIUM
6-10	1.1	0.25	STAND AND SITE DATA			
10-20	0	0	Age of overstory dominants:			
20+	0	0	LAOC 280 yrs			National Forest: LoLo
			PSME 133 yrs			Ranger District: Missoula
SUBTOTAL 3+	1.9	0.43				Drainage: Woods Gulch
TOTAL	3.7	0.84	Average slope: 60 %			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Aspect: northwest			Photo taken: 7/28/77
H		8	Elevation: 4660 ft 1420 m			By: W. C. Fischer
			Remarks: Fire Ecology Group Six			



DATA SHEET

FOREST COVER TYPE: SAF NO.

214

Stand No.

70

Ponderosa pine - larch - Douglas-fir

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight Kg/m ²	Average duff depth:	1.2 in 3.05 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.4 0.09	Average diameter, 3+ fuels:	4.6 in	Rate of Spread: medium	
0.25-1	1.4 0.31		11.68 cm	Intensity: medium	
1-3	1.1 0.25	Percent rotten, 3+ fuels:	92 %	Torching: medium	
		Volume of sound 3+ fuels:	36 ft ³ /ac 2.5 m ³ /ha	Crowning: low	
Subtotal 0-3	2.9 0.65			Resistance to control: medium	
3-6	3.2 0.72	Overall Fire Potential MEDIUM			
6-10	0.7 0.16	STAND AND SITE DATA			
10-20	1.4 0.31	Age of overstory dominants: 75 yrs			
20+	0 0	PSME 72 yrs			
SUBTOTAL 3+	5.3 1.19	National Forest: Lolo			
TOTAL	8.2 1.84	Ranger District: Missoula			
NFDRS FUEL MODEL		Drainage: Rattlesnake Cr.			
STYLIZED FUEL MODEL		Photo taken: 7/15/77			
H		By: W. C. Fischer			
8		Remarks: Fire Ecology Group Six			



DATA SHEET

Stand No. 64

FOREST COVER TYPE: SAF NO. 214 Ponderosa pine - larch - Douglas-fir
MONTANA HABITAT TYPE: NO. 261 Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.6 in 4.06 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2	0.04	Average diameter, 3+fuels: 4.6 in		Rate of Spread: medium	
0.25-1	0.7	0.16	11.68 cm		Intensity: low	
1-3	0.8	0.18	Percent rotten, 3+fuels: 70 %		Torching: low	
			Volume of sound 3+fuels: 180 ft ³ /ac 12.6 m ³ /ha		Crowning: low	
Subtotal 0-3	1.7	0.38			Resistance to control: medium	
3-6	3.4	0.76			Overall Fire Potential LOW	
6-10	4.3	0.96				
10-20	0	0				
20+	0	0				
SUBTOTAL 3+	7.7	1.72				
TOTAL	9.4	2.10				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	STAND AND SITE DATA			
H		8	Age of overstory dominants: PIPO 128 yrs			
			LAOC 110 yrs			
			ABGR 92 yrs			
			Average slope: 20 %			
			Aspect: southeast			
			Elevation: 4260 ft 1298 m			
			Remarks: Fire Ecology Group Six			
			Photo taken: 7/14/77			
			By: W. C. Fischer			
			National Forest: Lolo			
			Ranger District: Missoula			
			Drainage: Rattlesnake Cr.			



DATA SHEET

Stand No. 79

FOREST COVER TYPE: SAF NO. 214

Ponderosa pine - larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 282

Douglas-fir/blue huckleberry-kinnikinnick phase (PSME/VAGL-ARUV)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.8 in 4.57 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2	0.04	Average diameter, 3+fuels: 5.1 in		Rate of Spread: medium	
0.25-1	0.7	0.16	12.95 cm		Intensity: medium	
1-3	0.5	0.11	Percent rotten, 3+fuels: 26 %		Torching: low	
			Volume of sound 3+fuels: 526 ft ³ /ac		Crowning: low	
Subtotal 0-3	1.4	0.31	36.8 m ³ /ha		Resistance to control: low	
3-6 3.1 0.69			Overall Fire Potential MEDIUM			
6-10 5.1 1.14						
10-20 0.8 0.18						
20+ 0 0						
SUBTOTAL 3+ 9.0 2.01						
TOTAL 10.4 2.32						
STYLIZED FUEL MODEL			STAND LOCATION			
NFORS FUEL MODEL			National Forest: LoLo			
			Ranger District: Missoula			
			Drainage: Woods Gulch			
			Photo taken: 7/28/77			
			By: W. C. Fischer			
H 8			Remarks: Fire Ecology Group Six			



DATA SHEET

Stand No. 75

FOREST COVER TYPE: SAF NO. 214 Ponderosa pine - larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 261 Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.2 in 3.05 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 milh wind, 4 weeks since rain	
0-0.25	0.5	0.11	Average diameter, 3+fuels: 3.6 in		Rate of Spread: medium	
0.25-1	1.4	0.31	9.14 cm		Intensity: medium	
1-3	4.6	1.03	Percent rotten, 3+fuels: 37 %		Torching: medium	
Subtotal 0-3	6.5	1.45	Volume of sound 3+fuels: 211 ft ³ /ac 14.8 m ³ /ha		Crowning: Low	
3-6	3.1	0.69	STAND AND SITE DATA		Resistance to control: Low	
6-10	0.5	0.11	Age of overstory dominants: PIPO 65 yrs		Overall Fire Potential MEDIUM	
10-20	0.7	0.16	PSME 64 yrs		STAND LOCATION	
20+	0	0	Average slope: 10 %		National Forest: Lolo	
SUBTOTAL 3+	4.3	0.96	Aspect: southwest		Ranger District: Missoula	
TOTAL	10.8	2.41	Elevation: 4480 ft 1366 m		Drainage: Woods Gulch	
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Photo taken: 7/27/77			
U		9	By: W. C. Fischer			



DATA SHEET

Stand No. 73

FOREST COVER TYPE: SAF NO.214

Ponderosa pine - larch - Douglas-fir

MONTANA HABITAT TYPE: NO.261

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.5	0.11	Average duff depth: 1.2 in 3.05 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0.25-1	1.0	0.22	Average diameter, 3 + fuels: 6.0 in		Rate of Spread: medium	
1-3	1.1	0.25	15.24 cm		Intensity: low	
			Percent rotten, 3 + fuels: 68 %		Torching: low	
			Volume of sound 3 + fuels: 230 ft ³ /ac 16.1 m ³ /ha		Crowning: low	
Subtotal 0-3	2.6	0.58			Resistance to control: low	
3-6	1.8	0.40			Overall Fire Potential LOW	
6-10	5.6	1.26				
10-20	1.5	0.34				
20+	0	0				
SUBTOTAL 3+	8.9	2.00				
TOTAL	11.5	2.58				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
H		8				

STAND AND SITE DATA		STAND LOCATION	
Age of overstory dominants: PIPO 172 yrs		National Forest: Lolo	
PSME 110 yrs		Ranger District: Missoula	
		Drainage: Woods Gulch	
Average slope: 40 % Aspect: southeast Elevation: 4080 ft 1244 m		Photo taken: 7/27/77	
Remarks: Fire Ecology Group Six		By: W. C. Fischer	



DATA SHEET

Stand No. 77

FOREST COVER TYPE: SAF NO. 214Ponderosa pine - larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 322Douglas-fir/pinegrass-kinnikinnick phase (PSME/CARU-ARUV)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.7 in 4.32 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.1	0.02	Average diameter, 3 + fuels: 9.3 in		Rate of Spread: medium	
0.25-1	0.5	0.11	23.62 cm		Intensity: medium	
1-3	0.8	0.18	Percent rotten, 3 + fuels: 81 %		Torching: medium	
Subtotal 0-3	1.4	0.31	Volume of sound 3 + fuels: 167 ft ³ /ac 11.7 m ³ /ha		Crowning: Low	
3-6	0.1	0.02	STAND AND SITE DATA		Resistance to control: Low	
6-10	2.0	0.45	Age of overstory dominants:		Overall Fire Potential MEDIUM	
10-20	8.8	1.97	PIPO 190 yrs		STAND LOCATION	
20 +	0	0	PSME 188 yrs		National Forest: Lolo	
SUBTOTAL 3 +	10.9	2.44	LAOC 145 yrs		Ranger District: Missoula	
TOTAL	12.3	2.75	Average slope: 20 %		Drainage: Woods Gulch	
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Photo taken: 7/28/77			
H		8	By: W. C. Fischer			
			Remarks: Fire Ecology Group Six			



DATA SHEET

Stand No. 84

FOREST COVER TYPE: SAF NO. 214 Ponderosa pine - larch - Douglas-fir
MONTANA HABITAT TYPE: NO. 283 Douglas-fir/blue huckleberry-beargrass phase (PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.7	0.16	Average duff depth: 0.8 in 2.03 cm		Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0.25-1	2.3	0.52	Average diameter, 3+ fuels: 5.1 in		Rate of Spread: medium	
1-3	2.0	0.45	Percent rotten, 3+ fuels: 0 %		Intensity: medium	
			Volume of sound 3+ fuels: 1093 ft ³ /ac /6.5 m ³ /ha		Torching: medium	
Subtotal 0-3	5.0	1.13			Crowning: low	
3-6	4.3	0.96			Resistance to control: medium	
6-10	8.0	1.79			Overall Fire Potential HIGH	
10-20	1.3	0.29			STAND LOCATION	
20+	0	0			National Forest: Lolo	
SUBTOTAL 3+	13.6	3.04			Ranger District: Missoula	
TOTAL	18.6	4.17			Drainage: Howard Cr.	
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
J		12				
		Average slope: 20 % Aspect: southwest Elevation: 5470 ft 1667 m Remarks: old thinning slash Fire Ecology Group Six				
		Photo taken: 8/22/77 By: W. C. Fischer				



DATA SHEET

Stand No. 74

FOREST COVER TYPE: SAF NO.

214

MONTANA HABITAT TYPE: NO.

261

Ponderosa pine - larch - Douglas-fir

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.9 in 4.83 cm		Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.9	0.20	Average diameter, 3+fuels: 5.0 in		Rate of Spread: medium	
0.25-1	1.7	0.38	12.70 cm		Intensity: medium	
1-3	3.6	0.81	Percent rotten, 3+fuels: 32 %		Torching: medium	
			Volume of sound 3+fuels: 758 ft ³ /ac 53.0 m ³ /ha		Crowning: medium	
Subtotal 0-3	6.2	1.39			Resistance to control: medium	
3-6	4.0	0.90			Overall Fire Potential MEDIUM	
6-10	4.5	1.01				
10-20	1.8	0.40				
20+	3.7	0.83				
SUBTOTAL 3+	14.0	3.14				
TOTAL	20.2	4.53				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
G		10				

Age of overstory dominants:
FIPO

173 yrs

PSME

56 yrs

Average slope: 40 %

Aspect: southeast

Elevation: 4300 ft 1311 m

Remarks:

Fire Ecology Group Six

National Forest:

Lolo

Ranger District:

Missoula

Drainage:

Woods Gulch

Photo taken:

7/27/77

By:

W. C. Fischer



DATA SHEET

Stand No. 78

FOREST COVER TYPE: SAF NO. 214 Ponderosa pine - larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 293 Douglas-fir/twinflower-blue huckleberry phase (PSME/LIBO-VAGL)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.9 in 4.83 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2	0.04	Average diameter, 3 + fuels:	8.4 in	Rate of Spread:	medium
0.25-1	1.1	0.25		21.34 cm	Intensity:	medium
1-3	1.7	0.38	Percent rotten, 3 + fuels:	46 %	Torching:	medium
			Volume of sound 3 + fuels:	1505 ft ³ /ac 105.3 m ³ /ha	Crowning:	medium
Subtotal 0-3	3.0	0.67	Overall Fire Potential			MEDIUM
			STAND AND SITE DATA			
3-6	3.3	0.74	Age of overstory dominants:			
6-10	0.7	0.16	PIPO 320 yrs			
10-20	31.0	6.95	LAOC 224 yrs			
20+	0	0	PSME 70 yrs			
SUBTOTAL 3+	35.0	7.85	Average slope: 30 %			
TOTAL	38.0	8.52	Aspect: northwest			
			Elevation: 4800 ft 1463 m			
			Remarks: Fire Ecology Group Six			
			Photo taken: 7/28/77			
			By: W. C. Fischer			

G 10

SERIES 3

LARCH - DOUGLAS-FIR

SAF COVER TYPE 212



DATA SHEET

Stand No. 68

FOREST COVER TYPE: SAF NO. 212 Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 322 Douglas-fir/pinegrass-kinnikinnick phase (PSME/CARU-ARUV)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight T/ac Kg/m ²				
0-0.25	0.5	0.11	Average duff depth: 1.8 in 4.57 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain
0.25-1	0.7	0.16	Average diameter, 3 + fuels: 0 in 0 cm		
1-3	0.2	0.04	Percent rotten, 3 + fuels: 0 %		
			Volume of sound 3 + fuels: 0 ft ³ /ac 0 m ³ /ha		
Subtotal 0-3	1.4	0.31			
		STAND AND SITE DATA			
3-6	0	0	Age of overstory dominants: 50 yrs		
6-10	0	0	LAOC 50 yrs		
10-20	0	0	PSME 50 yrs		
20 +	0	0	PICO 50 yrs		
SUBTOTAL 3 +	0	0			
TOTAL	1.4	0.31			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL		STAND LOCATION	
				National Forest: Lolo	
				Ranger District: Missoula	
				Drainage: Rattlesnake Cr.	
				Photo taken: 7/14/77	
				By: W. C. Fischer	

H 8



DATA SHEET

Stand No. 31

FOREST COVER TYPE: SAF NO. 212

Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 261

Douglas-fir/ninebark-ninebark phase (PSME/PIHMA-PIHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.6 in 4.06 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5	0.11	Average diameter, 3 + fuels: 3.6 in		Rate of Spread: Low	
0.25-1	1.2	0.27	9.14 cm		Intensity: Low	
1-3	1.2	0.27	Percent rotten, 3 + fuels: 14 %		Torching: Low	
Subtotal 0-3	2.9	0.65	Volume of sound 3 + fuels: 139 ft ³ /ac 9.7 m ³ /ha		Crowning: Low	
3-6	1.7	0.38			Resistance to control: Low	
6-10	0.3	0.07			Overall Fire Potential LOW	
10-20	0	0				
20+	0	0				
SUBTOTAL 3+	2.0	0.45				
TOTAL	4.9	1.10				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL		STAND LOCATION		
H		8		National Forest: Lolo		
				Ranger District: Missoula		
				Drainage: W. Fk. Swartz Cr.		
		Average Slope: 50 %		Photo taken: 6/20/77		
		Aspect: northwest		By: W. C. Fischer		
		Elevation: 5490 ft 1673 m				
		Remarks: Fire Ecology Group Six				



DATA SHEET

FOREST COVER TYPE: SAF NO.

212

Stand No.

71

MONTANA HABITAT TYPE: NO.

261

Larch - Douglas-fir

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 2.3 in 5.84 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5	0.11	Average diameter, 3+fuels: 5.3 in	Rate of Spread: medium	
0.25-1	1.9	0.43	8.38 cm	Intensity: medium	
1-3	2.1	0.47	Percent rotten, 3+fuels: 67 %	Torching: medium	
			Volume of sound 3+fuels: 21 ft ³ /ac 1.5 m ³ /ha	Crowning: Low	
Subtotal 0-3	4.5	1.01		Resistance to control: medium	
			Overall Fire Potential MEDIUM		
			STAND AND SITE DATA		
			Age of overstory dominants: 75 yrs		
			PSME		
			LAOC 65 yrs		
			Average slope: 80 %		
			Aspect: northeast		
			Elevation: 3480 ft 1061 m		
			Remarks:		
			Fire Ecology Group Six		
SUBTOTAL 3+					
TOTAL					
5.3 1.19					
NFDRS FUEL MODEL		STYLIZED FUEL MODEL			
H		8			



DATA SHEET

FOREST COVER TYPE: SAF NO.

212

MONTANA HABITAT TYPE: NO.

261

Stand No.

14

Larch - Douglas-fir

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.7	0.16	Average duff depth: 2.4 in 6.10 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0.25-1	1.3	0.29	Average diameter, 3 + fuels: 4.3 in 10.92 cm		Rate of Spread: low Intensity: low Torching: low Crowning: low	
1-3	3.1	0.69	Percent rotten, 3 + fuels: 58 %		Resistance to control: low	
Subtotal 0-3	5.1	1.14	Volume of sound 3 + fuels: 250 ft ³ /ac 17.5 m ³ /ha		Overall Fire Potential LOW	
3-6	4.1	0.92				
6-10	3.4	0.76				
10-20	0	0				
20 +	0	0				
SUBTOTAL 3 +	7.5	1.68				
TOTAL	12.6	2.82				
STYLIZED FUEL MODEL			STAND LOCATION			
NFDRS FUEL MODEL			National Forest: Lolo Ranger District: Ninemile Drainage: Mill Cr.			
H/G			Photo taken: 9/22/76 By: W. C. Fischer			
8/10			Remarks: Fire Ecology Group Six			



DATA SHEET

FOREST COVER TYPE: SAF NO.

212

Stand No.

88

MONTANA HABITAT TYPE: NO.

292

Larch - Douglas-fir

Douglas-fir/twinflower-pinegrass phase (PSME/LIBO-CARU)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (inches)	T/ac	Weight Kg/m ²	Average duff depth: 2.2 in 5.59 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2	0.04	Average diameter, 3 + fuels: 4.1 in		Rate of Spread: medium	
0.25-1	1.5	0.34	10.41 cm		Intensity: low	
1-3	4.0	0.90	Percent rotten, 3 + fuels: 25 %		Torching: nil	
			Volume of sound 3 + fuels: 462 ft ³ /ac 32.3 m ³ /ha		Crowning: nil	
Subtotal 0-3	5.7	1.28			Resistance to control: low	
3-6	5.2	1.17			Overall Fire Potential LOW	
6-10	2.5	0.56				
10-20	0	0			STAND LOCATION	
20+	0	0			National Forest: Lolo	
SUBTOTAL 3+	7.7	1.73			Ranger District: Missoula	
TOTAL	13.4	3.01			Drainage: N. Fk. Howard Cr.	
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Photo taken: 8/29/77			
C		2	By: W. C. Fischer			



DATA SHEET

Stand No. 13

FOREST COVER TYPE: SAF NO. 212 Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 521 Grand fir/queencup beadlily-queencup beadlily phase (ABGR/CLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.8 in 4.57 cm		Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.3	0.07	Average diameter, 3 + fuels: 4.7 in		Rate of Spread: medium	
0.25-1	1.5	0.34	11.94 cm		Intensity: medium	
1-3	3.5	0.78	Percent rotten, 3 + fuels: 33 %		Torching: low	
Subtotal 0-3			Volume of sound 3 + fuels: 908 ft ³ /ac 63.5 m ³ /ha		Crowning: low	
3-6			5.3 1.19		Resistance to control: medium	
6-10			9.3 2.08		Overall Fire Potential MEDIUM	
10-20			5.0 1.12		STAND LOCATION	
20 +			2.6 0.58		National Forest: LoLo	
SUBTOTAL 3 +			0 0		Ranger District: Ninemile	
TOTAL			16.9 3.78		Drainage: Mill Cr.	
22.2 4.97			Age of overstory dominants: 100 yrs PSME		Photo taken: 9/22/76	
STYLIZED FUEL MODEL			ABGR 50 yrs		By: W. C. Fischer	
NFDRS FUEL MODEL			Average slope: 10 % Aspect: north Elevation: 3410 ft 1039 m			
G			Remarks: Fire Ecology Group Eleven			
10						



DATA SHEET

Stand No. 9

FOREST COVER TYPE: SAF NO. 212

Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 691

Subalpine fir/beargrass-blue huckleberry phase
(ABLA/XETE-VAGL)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	0.5 in 1.27 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.1	0.02	Average diameter, 3+fuels:	5.6 in	Rate of Spread: medium	
0.25-1	1.0	0.22		14.22 cm	Intensity: low	
1-3	4.0	0.90	Percent rotten, 3+fuels:	7 %	Torching: nil	
			Volume of sound 3+fuels:	1358 ft ³ /ac 95.0 m ³ /ha	Crowning: nil	
Subtotal 0-3	5.1	1.14			Resistance to control: low	
3-6	4.5	1.01	STAND AND SITE DATA			
6-10	5.1	1.14	Age of overstory dominants:			
10-20	8.7	1.95				
20+	0	0				
SUBTOTAL 3+	18.3	4.10				
TOTAL	23.4	5.24				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	STAND LOCATION			
			National Forest: Lolo			
			Ranger District: Missoula			
			Drainage: Cloudburst Cr.			
			Photo taken: 9/17/76			
			By: S. Cox			

A

1



DATA SHEET

Stand No. 89

FOREST COVER TYPE: SAF NO. 212

Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 292

Douglas-fir/twinflower-pinegrass phase (PSME/LIBO-CARU)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING		
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.6 in 4.06 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain		
0-0.25	0.6	0.13	Average diameter, 3 + fuels: 4.9 in		Rate of Spread: medium		
0.25-1	5.0	1.12	12.45 cm		Intensity: medium		
1-3	2.2	0.49	Percent rotten, 3 + fuels: 12 %		Torching: low		
Subtotal 0-3	7.8	1.74	Volume of sound 3 + fuels: 1134 ft ³ /ac 79.4 m ³ /ha		Crowning: low		
3-6	6.8	1.52	STAND AND SITE DATA			Resistance to control: medium	
6-10	9.3	2.08				Overall Fire Potential MEDIUM	
10-20	0	0				STAND LOCATION	
20 +	0	0				National Forest: Lo1o	
SUBTOTAL 3 +	16.1	3.60	Age of overstory dominants: PSME 105 yrs		Ranger District: Missoula		
TOTAL	23.9	5.34	Average slope: 54 %		Drainage: N. Fk. Howard Ck.		
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Photo taken: 8/29/77				
K/G		11/10	By: W. C. Fischer				





DATA SHEET

FOREST COVER TYPE: SAF NO.

212

Stand No.

29

MONTANA HABITAT TYPE: NO.

283

Larch - Douglas-fir

Douglas-fir/blue huckleberry-beargrass phase (PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:		Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.3	0.07	1.7 in		Rate of Spread: low	
0.25-1	1.7	0.38	4.32 cm		Intensity: low	
1-3	1.9	0.43	Average diameter, 3+fuels: 5.4 in		Torching: low	
			13.72 cm		Crowning: low	
			Percent rotten, 3+fuels: 47 %		Resistance to control: low	
Subtotal 0-3	3.9	0.88	Volume of sound 3+fuels: 932 ft ³ /ac		Overall Fire Potential LOW	
			65.2 m ³ /ha			
3-6	5.9	1.32				
6-10	14.9	3.34				
10-20	1.3	0.29				
20+	0	0				
SUBTOTAL 3+	22.1	4.95				
TOTAL	26.0	5.83				
NFDRS FUEL MODEL			STAND AND SITE DATA			
STYLIZED FUEL MODEL			Age of overstory dominants: 130 yrs			
			LAOC			
			PSME 115 yrs			
			PICO 105 yrs			
			Average slope: 40 %			
			Aspect: northwest			
			Elevation: 5425 ft 1654 m			
			Remarks: Fire Ecology Group Six			
G			10			

Photo taken: 6/20/77

By: W. C. Fischer



DATA SHEET

Stand No. 30

FOREST COVER TYPE: SAF NO.

212

MONTANA HABITAT TYPE: NO.

261

Larch - Douglas-fir

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.5 in 3.81 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.3	0.07	Average diameter, 3 + fuels: 8.9 in		Rate of Spread: Low	
0.25-1	0.7	0.16	22.61 cm		Intensity: Low	
1-3	0.8	0.18	Percent rotten, 3 + fuels: 80 %		Torching: Low	
			Volume of sound 3+fuels: 410 ft ³ /ac 28.7 m ³ /ha		Crowning: Low	
Subtotal 0-3	1.8	0.41			Resistance to control: Low	
3-6	1.6	0.36			Overall Fire Potential: LOW	
6-10	4.0	0.90				
10-20	16.8	3.77			STAND LOCATION	
20+	3.1	0.69			National Forest: Lolo	
SUBTOTAL 3+	25.5	5.72			Ranger District: Missoula	
TOTAL	27.3	6.13			Drainage: W. Fk. Swartz Cr.	
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Photo taken: 6/20/77			
G		10	By: W. C. Fischer			



DATA SHEET

FOREST COVER TYPE: SAF NO.

212

Stand No.

56

MONTANA HABITAT TYPE: NO.

203

Larch - Douglas-fir

Douglas-fir/blue huckleberry-beargrass phase (PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.9 in 4.83 cm	Based on an average bad day: 85-90 ° temp., 15-20% RH., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.4	0.09	Average diameter, 3+ fuels:	4.9 in	Rate of Spread:	medium
0.25-1	2.7	0.61		12.45 cm	Intensity:	medium
1-3	3.5	0.78	Percent rotten, 3+ fuels:	52 %	Torching:	medium
			Volume of sound 3+ fuels:	897 ft ³ /ac 62.8 m ³ /ha	Crowning:	Low
Subtotal 0-3	6.6	1.48			Resistance to control:	medium
3-6	11.7	2.62	Overall Fire Potential MEDIUM			
6-10	4.0	0.90	STAND AND SITE DATA			
10-20	7.4	1.66	Age of overstory dominants:			
20+	0	0	PICO 42 yrs			
			PSME 30 yrs			
			LAOC 30 yrs			
SUBTOTAL 3+	23.1	5.18	Average slope: 60 %			
TOTAL	29.7	6.66	Aspect: northeast			
			Elevation: 5470 ft 1667 m			
			Remarks: old thinning slash			
			Fire Ecology Group Six			
NFDRS FUEL MODEL			STYLIZED FUEL MODEL			
G			10			

Photo taken:

7/6/77

By:

W. C. Fischer



DATA SHEET

Stand No. 33

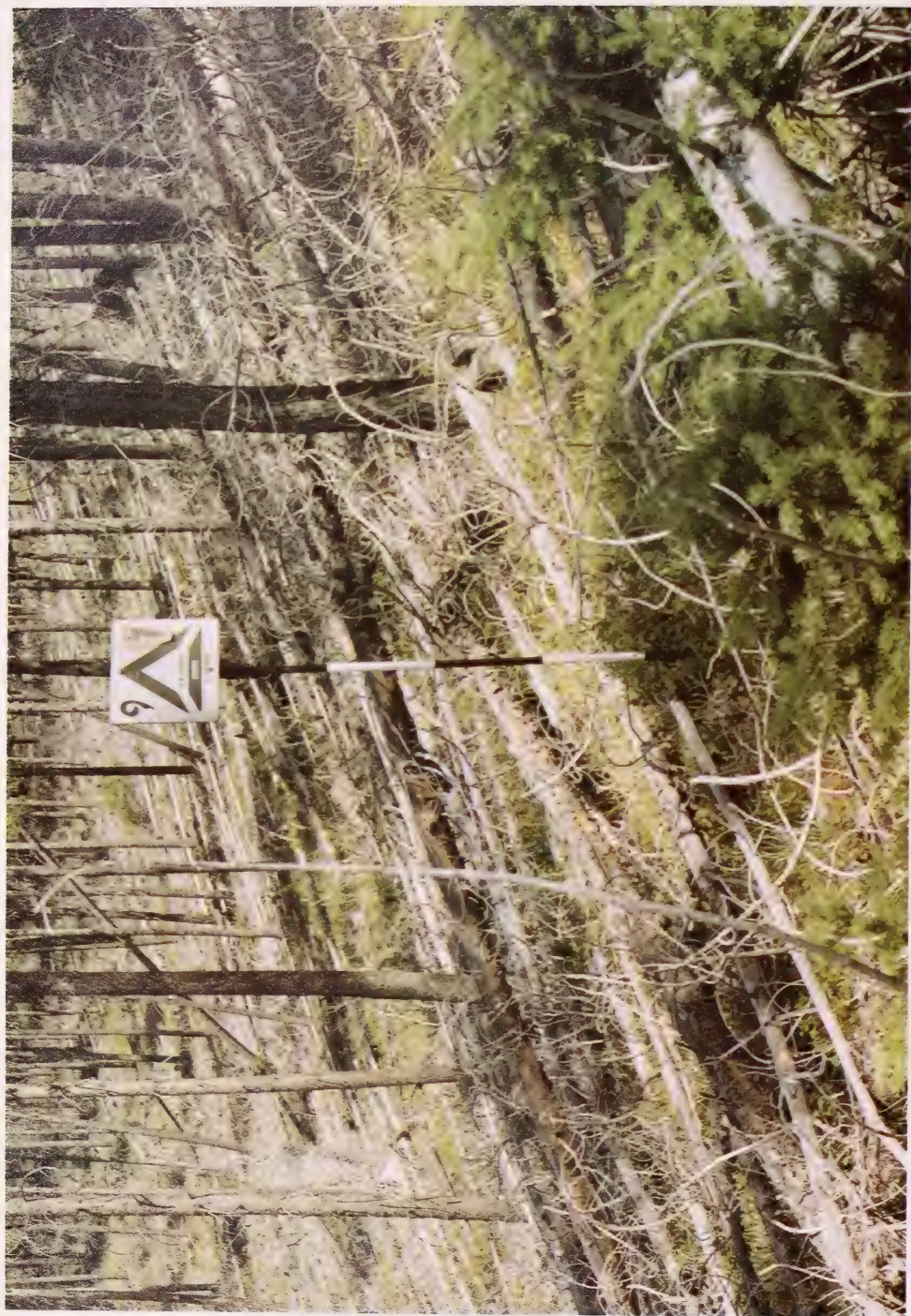
FOREST COVER TYPE: SAF NO. 212Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 670Subalpine fir/menziesia (ABLA/MEFE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	2.5 in 6.35 cm	Based on an average bad day: 85-90 ° temp., 15-20% RH, 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5	0.11	Average diameter, 3 + fuels:	4.2 in	Rate of Spread:	high
0.25-1	2.9	0.65			Intensity:	high
1-3	12.9	2.89	Percent rotten, 3 + fuels:	35 %	Torching:	medium
			Volume of sound 3 + fuels:	1070 ft ³ /ac 74.9 m ³ /ha	Crowning:	medium
Subtotal 0-3	16.3	3.65			Resistance to control:	high
3-6	13.0	2.91	Overall Fire Potential HIGH			
6-10	2.2	0.49	STAND AND SITE DATA			
10-20	5.4	1.21	Age of overstory dominants: 134 yrs			
20 +	0	0	LAOC 120 yrs			
			PICO 90 yrs			
			PSME			
SUBTOTAL 3 +	20.6	4.61	Average slope: 50 %			
TOTAL	36.9	8.26	Aspect: east			
			Elevation: 5555 ft 1693 m			
			Remarks: Fire Ecology Group Nine			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
G		10				

Photo taken: 6/20/77
By: W. C. Fischer

National Forest: Lolo
Ranger District: Missoula
Drainage: W. Fk. Swartz Cr.





DATA SHEET

FOREST COVER TYPE: SAF NO. 212

Stand No. 91

MONTANA HABITAT TYPE: NO. 691

Larch - Douglas-fir

Douglas-fir/blue huckleberry-beargrass phase (PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 1.3 in 3.3 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.7	0.16	Average diameter, 3+fuels: 4.0 in		Rate of Spread: high	
0.25-1	2.9	0.65	10.16 cm		Intensity: high	
1-3	6.7	1.50	Percent rotten, 3+fuels: 1 %		Torching: Low	
Subtotal 0-3			Volume of sound 3+fuels: 2216 ft ³ /ac 155.1 m ³ /ha		Crowning: Low	
3-6			23.2		Resistance to control: medium	
6-10			4.7		Overall Fire Potential HIGH	
10-20			0		STAND LOCATION	
20+			0		National Forest: Lolo	
SUBTOTAL 3+			27.9		Ranger District: Missoula	
TOTAL			38.2		Drainage: Howard Cr.	
NFDRS FUEL MODEL			STYLIZED FUEL MODEL		Photo taken: 8/29/77	
1			13		By: W. C. Fischer	



DATA SHEET

Stand No. 32

FOREST COVER TYPE: SAF NO. 212Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 261Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.4 3.56	in cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain
0-0.25	1.5	0.34	Average diameter, 3+fuels:	4.9	in	
0.25-1	4.4	0.99		12.45	cm	
1-3	10.3	2.31	Percent rotten, 3+fuels:	4	%	
Subtotal 0-3	16.2	3.64	Volume of sound 3+fuels:	3673	ft ³ /ac	
				257.0	m ³ /ha	
STAND AND SITE DATA						
Age of overstory dominants: 150 yrs						
LAOC						
PSME 140 yrs						
PICO 130 yrs						
Average slope: 60 %						
Aspect: east						
Elevation: 5525 ft 1684 m						
Remarks: recent thinning slash in old clearcut						
Fire Ecology Group Six						
STYLIZED FUEL MODEL			13			
NFDRS FUEL MODEL			1			

Overall Fire Potential HIGH

STAND LOCATION

National Forest: Lolo

Ranger District: Missoula

Drainage: W. Fk. Swartz Cr.

Photo taken: 6/20/77

By: W. C. Fischer



DATA SHEET

Stand No. 8

FOREST COVER TYPE: SAF NO. 212 Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 691 Subalpine fir/beargrass-blue huckleberry phase (ABLA/XETE-VAGL)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 4.6 in 11.68 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	1.5	0.34	Average diameter, 3+fuels: 4.7 in		Rate of Spread: high	
0.25-1	3.1	0.69	11.94 cm		Intensity: high	
1-3	11.0	2.47	Percent rotten, 3+fuels: 9 %		Torching: medium	
Subtotal 0-3	15.6	3.50	Volume of sound 3+fuels: 5024 ft ³ /ac 351.5 m ³ /ha		Crowning: low	
3-6	34.8	7.80	STAND AND SITE DATA		Resistance to control: high	
6-10	20.5	4.60			Overall Fire Potential HIGH	
10-20	0.6	0.13			STAND LOCATION	
20+	0	0			National Forest: Lolo	
SUBTOTAL 3+	55.9	12.53	Age of overstory dominants: 87 yrs		Ranger District: Missoula	
TOTAL	71.5	16.03	LAOC 80 yrs		Drainage: Cloudburst Cr.	
			ABLA 70 yrs			
			Average slope: 40 %			
			Aspect: north		Photo taken: 9/17/76	
			Elevation: 5720 ft 1744 m		By: S. Cox	
			Remarks: old thinning slash			
			Fire Ecology Group Eight			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
1		13				



DATA SHEET

Stand No. 28

FOREST COVER TYPE: SAF NO. 212

Larch - Douglas-fir

MONTANA HABITAT TYPE: NO. 283

Douglas-fir/blue huckleberry-beargrass phase
(PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	2.7 in 6.86 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.3	0.07	Average diameter, 3 + fuels:	5.6 in	Rate of Spread:	low
0.25-1	1.5	0.34		14.22 cm	Intensity:	medium
1-3	4.3	0.96	Percent rotten, 3 + fuels:	21 %	Torching:	low
			Volume of sound 3 + fuels:	4304 ft ³ /ac 301.2 m ³ /ha	Crowning:	low
Subtotal 0-3	6.1	1.37	Overall Fire Potential			medium
3-6	12.2	2.73	MEDIUM			
6-10	17.0	3.81	STAND LOCATION			
10-20	2.0	0.45	National Forest: Lolo			
20+	36.6	8.20	Ranger District: Missoula			
SUBTOTAL 3+	67.8	15.19	Drainage: W. Fk. Swartz Cr.			
TOTAL	73.9	16.56	Photo taken: 6/20/77			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	By: W. C. Fischer			
G		10	Remarks: Fire Ecology Group Six			

SERIES 4
INTERIOR DOUGLAS-FIR
SAF COVER TYPE 210



DATA SHEET

Stand No. 43

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 283 Douglas-fir/blue huckleberry-beargrass phase (PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING		
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.4 in 3.56 cm	Based on an average bad day: 85-90 ° temp., 15-20% RH., 10-15 mi/h wind, 4 weeks since rain		
0-0.25	0.4	0.09	Average diameter, 3+ fuels:	4.3 in	Rate of Spread:	Low	
0.25-1	1.2	0.27		10.92 cm	Intensity:	Low	
1-3	0.8	0.18	Percent rotten, 3+ fuels:	0 %	Torching:	Low	
			Volume of sound 3+ fuels:	37 ft ³ /ac 2.6 m ³ /ha	Crowning:	Low	
Subtotal 0.3	2.4	0.54			Resistance to control:	Low	
3-6	0.5	0.11	STAND AND SITE DATA			Overall Fire Potential	LOW
6-10	0	0	Age of overstory dominants: 100 yrs				
10-20	0	0	PSME 84 yrs				
20+	0	0	Average slope: 57 %				
			Aspect: southeast				
			Elevation: 6145 ft 1873 m				
SUBTOTAL 3+	0.5	0.11	Remarks:				
TOTAL	2.9	0.65	Fire Ecology Group Six				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL		Photo taken: 6/23/77			
H		8		By: W. C. Fischer			



DATA SHEET

Stand No. 14A

FOREST COVER TYPE: SAF NO.

210

Interior Douglas-fir

MONTANA HABITAT TYPE: NO.

261

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth: 2.0 in 5.08 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.9	0.20	Average diameter, 3 + fuels: 4.3 in 10.92 cm		Rate of Spread: medium	
0.25-1	1.8	0.40	Percent rotten, 3 + fuels: 65 %		Intensity: medium	
1-3	1.2	0.27	Volume of sound 3 + fuels: 17 ft ³ /ac 1.2 m ³ /ha		Torching: low	
Subtotal 0-3	3.9	0.87			Crowning: low	
3-6	0.3	0.07			Resistance to control: low	
6-10	0.3	0.07			Overall Fire Potential MEDIUM	
10-20	0	0				
20+	0	0				
SUBTOTAL 3+	0.6	0.14				
TOTAL	4.5	1.01				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
H		8	Age of overstory dominants: PIPO 67 yrs PSME 60 yrs Average slope: 22 % Aspect: south Elevation: 3200 ft 975 m Remarks: Fire Ecology Group Six			
			National Forest: Kootenai Ranger District: Troy Drainage: Camp Cr. Photo taken: 6/28/78 By: W. C. Fischer			



DATA SHEET

FOREST COVER TYPE: SAF NO.

210

Stand No.

39A

MONTANA HABITAT TYPE: NO.

312

Interior Douglas-fir

Douglas-fir/snowberry-pinegrass phase (PSME/SYAL-CARU)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING		
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.4 3.56	in cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.4	0.09	Average diameter, 3 + fuels:	4.8	in		Rate of Spread: Low
0.25-1	0.7	0.16		12.19	cm		Intensity: Low
1-3	1.3	0.29	Percent rotten, 3 + fuels:	98	%		Torching: Low
Subtotal 0-3	2.4	0.54	Volume of sound 3 + fuels:	7	ft ³ /ac		Crowning: Low
				0.5	m ³ /ha	Resistance to control: Low	
			STAND AND SITE DATA			Overall Fire Potential LOW	
			Age of overstory dominants: PSME 75 yrs			STAND LOCATION	
						National Forest: Lewis & Clark	
						Ranger District: White Sulphur Springs	
						Drainage: Whitetail Deer Cr.	
SUBTOTAL 3+			3.9 0.87				
TOTAL			6.3 1.41				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Photo taken: 8/15/78				
H		8	By: W. C. Fischer				



DATA SHEET

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

Stand No. 41A

MONTANA HABITAT TYPE: NO. 220 Douglas-fir/Idaho fescue (PSME/FEID)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:		Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5	0.11		0.9 in	Rate of Spread:	Low
0.25-1	1.5	0.34		2.29 cm	Intensity:	Low
1-3	0.8	0.18	Average diameter, 3+fuels:	5.8 in	Torching:	nil
				14.73 cm	Crowning:	nil
			Percent rotten, 3+fuels:	25 %	Resistance to control:	Low
Subtotal 0-3	2.8	0.63	Volume of sound 3+fuels:	228 ft ³ /ac		
				16.0 m ³ /ha		
3-6	0.6	0.13	Overall Fire Potential LOW			
6-10	1.8	0.40	STAND AND SITE DATA			
10-20	1.4	0.31	Age of overstory dominants:			
20+	0	0	PSME 103 yrs			
SUBTOTAL 3+	3.8	0.84				
TOTAL	6.6	1.47				
NFIRS FUEL MODEL	STYLIZED FUEL MODEL		STAND LOCATION			
H	8		National Forest: Lewis & Clark			
			Ranger District: White Sulphur Springs			
			Drainage: Spring Cr.			
			Photo taken: 8/15/78			
By: W. C. Fischer						



DATA SHEET

Stand No. 49

FOREST COVER TYPE: SAF NO. 210Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 323Douglas-fir/pinegrass-pinegrass phase (PSME/CARU-CARU)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight T/ac Kg/m ²	Average duff depth:	1.0 in 2.54 cm	Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.4	Average diameter, 3 + fuels:	7.3 in	Rate of Spread:	medium
0.25-1	0.9			Intensity:	low
1-3	1.2	Percent rotten, 3 + fuels:	71 %	Torching:	low
		Volume of sound 3 + fuels:	120 ft ³ /ac	Crowning:	low
Subtotal 0-3	2.5		8.4 m ³ /ha	Resistance to control:	low
		Overall Fire Potential LOW			
		STAND AND SITE DATA			
		Age of overstory dominants: PSME 295 yrs			
		PIPO 150 yrs			
		Average slope: 70 %			
		Aspect: northwest			
		Elevation: 5800 ft 1768 m			
		Remarks:			
		Fire Ecology Group Six			
		STAND LOCATION			
		National Forest: Lolo			
		Ranger District: Missoula			
		Drainage: Gilbert Cr.			
		Photo taken: 6/24/77			
		By: W. C. Fischer			

C/H 2/8



DATA SHEET

FOREST COVER TYPE: SAF NO. 210

Stand No. 28A

MONTANA HABITAT TYPE: NO. 323

Interior Douglas-fir

Douglas-fir/pinegrass-pinegrass phase (PSME/CARU-CARU)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	2.4 in 6.10 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.4	0.09	Average diameter, 3+ fuels:	3.9 in	Rate of Spread:	high
0.25-1	1.1	0.25		9.91 cm	Intensity:	medium
1-3	3.6	0.81	Percent rotten, 3+ fuels:	41 %	Torching:	low
			Volume of sound 3+ fuels:	151 ft ³ /ac 10.6 m ³ /ha	Crowning:	medium
Subtotal 0.3	5.1	1.15			Resistance to control:	medium
3-6	2.0	0.45	Overall Fire Potential MEDIUM			
6-10	0.8	0.18	STAND AND SITE DATA			
10-20	0.4	0.09	Age of overstory dominants: PICO	77 yrs	STAND LOCATION	
20+	0	0	PSME	70 yrs	National Forest:	Helena
SUBTOTAL 3+	3.2	0.72			Ranger District:	Lincoln
TOTAL	8.5	1.87			Drainage:	Keep Cool Cr.
NFDRS FUEL MODEL	STYLIZED FUEL MODEL	Photo taken: 7/28/78				
H/G	8/10	By: W. C. Fischer				
		Remarks: Fire Ecology Group Six				



DATA SHEET

FOREST COVER TYPE: SAF NO. 210

Stand No. 36A

MONTANA HABITAT TYPE: NO. 292

Interior Douglas-fir

Douglas-fir/twinflower-pinegrass phase (PSME/LIBO-CARU)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight T/ac Kg/m ²	Average duff depth:	2.8 in 7.11 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5 0.11	Average diameter, 3 + fuels:	4.2 in	Rate of Spread:	medium
0.25-1	1.5 0.34			Intensity:	medium
1-3	4.2 0.94	Percent rotten, 3 + fuels:	76 %	Torching:	medium
		Volume of sound 3 + fuels:	78 ft ³ /ac 5.5 m ³ /ha	Crowning:	medium
Subtotal 0-3	6.2 1.39			Resistance to control:	low
3-6	2.3 0.52	Overall Fire Potential MEDIUM			
6-10	1.9 0.43	STAND AND SITE DATA			
10-20	0 0	Age of overstory dominants:			
20+	0 0	PSME 109 yrs			
		PICO 106 yrs			
		PICEA 86 yrs			
SUBTOTAL 3+	4.2 0.95				
TOTAL	10.4 2.34	Average slope: 16 %			
		Aspect: northwest			
		Elevation: 6050 ft 1844 m			
		Remarks:			
		Fire Ecology Group Six			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL			
G		10			

National Forest: Lewis & Clark

Ranger District: White Sulphur Springs

Drainage: Fourmile Cr.

Photo taken: 8/10/78

By: W. C. Fischer



DATA SHEET

Stand No. 27A

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 283 Douglas-fir/blue huckleberry-beargrass phase (PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.9 in 4.83 cm	Based on an average bad day: 85-90° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2	0.04	Average diameter, 3 + fuels:	5.6 in	Rate of Spread:	medium
0.25-1	0.8	0.18		14.22 cm	Intensity:	medium
1-3	1.2	0.27	Percent rotten, 3 + fuels:	92 %	Torching:	low
			Volume of sound 3 + fuels:	55 ft ³ /ac 3.9 m ³ /ha	Crowning:	low
Subtotal 0-3	2.2	0.49			Resistance to control:	low
3-6	1.9	0.43	Overall Fire Potential MEDIUM			
6-10	5.2	1.17	STAND AND SITE DATA			
10-20	1.7	0.38	Age of overstory dominants: PSME 86 yrs			
20+	0	0				
SUBTOTAL 3+	8.8	1.98				
TOTAL	11.0	2.47				
NFDRS FUEL MODEL	STYLIZED FUEL MODEL		Average slope: 17 % Aspect: northwest Elevation: 5120 ft 1561 m			
G	10		Remarks: Fire Ecology Group Six			
			Photo taken: 7/28/78 By: W. C. Fischer			



DATA SHEET

Stand No. 12A

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 521 Grand fir/queencup beadlily-queencup beadlily phase (ABGR/GLUN-CLUN)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.3	0.07	Average duff depth: 2.7 in	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 milh wind, 4 weeks since rain		
0.25-1	1.1	0.25	Average diameter, 3 + fuels: 6.8 in	Rate of Spread: medium		
1-3	0.4	0.09	Percent rotten, 3 + fuels: 83 %	Intensity: medium		
Subtotal 0-3	1.8	0.41	Volume of sound 3 + fuels: 154 ft ³ /ac	Torching: low		
3-6	1.1	0.25	10.8 m ³ /ha	Crowning: nil		
6-10	6.4	1.43	Resistance to control: medium			
10-20	3.5	0.78	Overall Fire Potential LOW			
20+	0	0	STAND LOCATION			
SUBTOTAL 3+	11.0	2.46	National Forest: Kootenai			
TOTAL	12.8	2.87	Ranger District: Libby			
			Drainage: Quartz Cr.			
NFDRS FUEL MODEL			Photo taken: 6/27/78			
STYLIZED FUEL MODEL			By: W. C. Fischer			
H			Remarks: Fire Ecology Group Eleven			
8						



DATA SHEET

Stand No. 37A

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 350 Douglas-fir/kinnikinnick (PSME/ARIV)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight Kg/m ² T/ac	Average duff depth: 1.1 in 2.79 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mph wind, 4 weeks since rain	
0-0.25	0.3	Average diameter, 3+fuels: 5.0 in		Rate of Spread: medium	
0.25-1	1.9			Intensity: medium	
1-3	2.9	Percent rotten, 3+fuels: 46 %		Torching: low	
		Volume of sound 3+fuels: 350 ft ³ /ac 24.5 m ³ /ha		Crowning: low	
Subtotal 0-3	5.1			Resistance to control: low	
3-6	2.3	STAND AND SITE DATA		Overall Fire Potential MEDIUM	
6-10	2.5	Age of overstory dominants: 112 yrs		STAND LOCATION	
10-20	3.3	PSME		National Forest: Lewis & Clark	
20+	0	PIPO		Ranger District: White Sulphur Springs	
SUBTOTAL 3+	8.1			Drainage: Decker Cr.	
TOTAL	13.2	Average slope: 6 southeast %		Photo taken: 8/10/78	
NFDRS FUEL MODEL		STYLIZED FUEL MODEL		By: W. C. Fischer	
H/G		8/10			



DATA SHEET

Stand No. 42A

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 323 Douglas-fir/pinegrass-pinegrass phase (PSME/CARU-CARU)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight kg/m ²	Average duff depth:	2.1 in 5.33 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5	0.11	Average diameter, 3+fuels:	6.3 in 16.00 cm	Rate of Spread:	medium
0.25-1	1.0	0.22			Intensity:	medium
1-3	0.8	0.18	Percent rotten, 3+fuels:	93 %	Torching:	low
			Volume of sound 3+fuels:	67 ft ³ /ac 4.7 m ³ /ha	Crowning:	medium
Subtotal 0-3	2.3	0.51			Resistance to control:	low
3-6	1.7	0.38	Overall Fire Potential MEDIUM			
6-10	6.2	1.39	STAND AND SITE DATA			
10-20	3.1	0.69	Age of overstory dominants: PSME 82 yrs			
20+	0	0				
SUBTOTAL 3+	11.0	2.46				
TOTAL	13.3	2.97				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	National Forest: Lewis & Clark			
			Ranger District: White Sulphur Springs			
			Drainage: Miller Gulch			
H		8	Photo taken: 8/15/78			
			By: W. C. Fischer			
			Remarks: Fire Ecology Group Six			



DATA SHEET

Stand No. 38A

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir
MONTANA HABITAT TYPE: NO. 323 Douglas-fir/pinegrass-pinegrass phase (PSME/CARU-CARU)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight T/ac Kg/m ²				
0-0.25	0.4	0.09			
0.25-1	2.4	0.54			
1-3	5.0	1.12			
Subtotal 0-3	7.8	1.75			
3-6	3.4	0.76			
6-10	2.6	0.58			
10-20	2.0	0.45			
20+	0	0			
SUBTOTAL 3+	8.0	1.79			
TOTAL	15.8	3.54			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL			
G		10			

STAND AND SITE DATA		STAND LOCATION	
Age of overstory dominants: PSME 104 yrs		National Forest: Lewis & Clark	
		Ranger District: White Sulphur Springs	
		Drainage: Decker Cr.	
Average slope: 6		Photo taken: 8/10/78	
Aspect: northwest		By: W. C. Fischer	
Elevation: 6300 ft 1920 m			
Remarks: Fire Ecology Group Six			

Based on an average bad day:
85-90 ° temp., 15-20% R.H., 10-15
mi/h wind, 4 weeks since rain

Rate of Spread: medium

Intensity: medium

Torching: medium

Crowning: low

Resistance to control: low

Overall Fire Potential MEDIUM



DATA SHEET

Stand No. 86

FOREST COVER TYPE: SAF NO.

210

Interior Douglas-fir

MONTANA HABITAT TYPE: NO.

261

Douglas-fir/ninebark-ninebark phase (PSME/PHMA-PHMA)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	2.4 in 6.10 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.8	0.18	Average diameter, 3 + fuels:	7.6 in	Rate of Spread:	medium
0.25-1	1.8	0.40		19.30 cm	Intensity:	medium
1-3	3.7	0.83	Percent rotten, 3 + fuels:	99 %	Torching:	medium
			Volume of sound 3 + fuels:	10 ft ³ /ac 0.7 m ³ /ha	Crowning:	medium
Subtotal 0-3	6.3	1.41			Resistance to control:	medium
3-6	0.4	0.09	Overall Fire Potential MEDIUM			
6-10	7.5	1.68	STAND AND SITE DATA			
10-20	2.0	0.45	Age of overstory dominants: PSME 65 yrs			
20+	0	0				
SUBTOTAL 3+	9.9	2.22				
TOTAL	16.2	3.63				
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	National Forest: Lolo			
			Ranger District: Missoula			
			Drainage: Howard Cr.			
			Photo taken: 8/22/77			
			By: W. C. Fischer			
			Remarks: Fire Ecology Group Six			

G 10



DATA SHEET

FOREST COVER TYPE: SAF NO.

210

Stand No.

43A

MONTANA HABITAT TYPE: NO.

312

Interior Douglas-fir

Douglas-fir/snowberry-pinegrass phase (PSME/SYAL-CARU)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight Kg/m ² T/ac	Average duff depth: 2.7 in 6.86 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.5 0.11	Average diameter, 3 + fuels: 4.0 in		Rate of Spread: medium	
0.25-1	2.7 0.61	10.16 cm		Intensity: medium	
1-3	8.7 1.95	Percent rotten, 3 + fuels: 62 %		Torching: high	
		Volume of sound 3 + fuels: 162 ft ³ /ac 11.3 m ³ /ha		Crowning: medium	
Subtotal 0-3	11.9 2.67			Resistance to control: medium	
3-6	3.6 0.81	STAND AND SITE DATA		Overall Fire Potential MEDIUM	
6-10	1.8 0.40			STAND LOCATION	
10-20	0 0	Age of overstory dominants: PSME 92 yrs		National Forest: Lewis & Clark	
20+	0 0	PICO 84 yrs		Ranger District: White Sulphur Springs	
SUBTOTAL 3+	5.4 1.21			Drainage: Miller Gulch	
TOTAL	17.3 3.88	Average slope: 6 southeast Aspect: southeast Elevation: 6450 ft 1966 m		Photo taken: 8/15/78	
NFDRS FUEL MODEL	STYLIZED FUEL MODEL	Remarks: Fire Ecology Group Six		By: W. C. Fischer	
C	10				



DATA SHEET

Stand No. 34

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 262 Douglas-fir/ninebark-pinegrass (PSME/PHMA-CARU)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.3	0.07	Average duff depth: 0.3 in 0.76 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0.25-1	2.3	0.52	Average diameter, 3 + fuels: 4.8 in 12.19 cm		Rate of Spread: medium Intensity: medium	
1-3	2.5	0.56	Percent rotten, 3 + fuels: 3 %		Torching: nil	
Subtotal 0-3	5.1	1.15	Volume of sound 3 + fuels: 1146 ft ³ /ac 80.2 m ³ /ha		Crowning: nil Resistance to control: low	
3-6	7.0	1.57	STAND AND SITE DATA		Overall Fire Potential LOW	
6-10	7.7	1.73				
10-20	0	0				
20 +	0	0				
SUBTOTAL 3 +	14.7	3.30	Age of overstory dominants:		STAND LOCATION	
TOTAL	19.8	4.45			National Forest: Lolo Ranger District: Missoula Drainage: W. Fk. Swartz Cr.	
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Average slope: 60 % Aspect: northwest Elevation: 5530 ft 1686 m Remarks: old burn Fire Ecology Group Four			
G		10	Photo taken: 6/20/77 By: W. C. Fischer			



DATA SHEET

Stand No. 40A

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 350 Douglas-fir/kinnikinnick (PSME/ARUV)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	3.0 in 7.62 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.4	0.09	Average diameter, 3 + fuels:	4.8 in	Rate of Spread:	high
0.25-1	1.9	0.43		12.19 cm	Intensity:	high
1-3	6.0	1.35	Percent rotten, 3 + fuels:	63 %	Torching:	high
			Volume of sound 3 + fuels:	507 ft ³ /ac 35.5 m ³ /ha	Crowning:	medium
Subtotal 0-3	8.3	1.87			Resistance to control:	medium
			STAND AND SITE DATA		Overall Fire Potential	MEDIUM
			Age of overstory dominants:		STAND LOCATION	
			PSME 105 yrs		National Forest:	Lewis & Clark
			PICO 88 yrs		Ranger District:	White Sulphur Springs
					Drainage:	Whitetail Deer
			Average slope: 11 %		Photo taken: 8/15/78	
			Aspect: northwest		By: W. C. Fischer	
			Elevation: 6320 ft 1926 m			
			Remarks: Fire Ecology Group Four			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL				
SUBTOTAL 3 +		17.3 3.88				
TOTAL		25.6 5.75				
G		10				



DATA SHEET

Stand No. 42

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 691 Subalpine fir/beargrass-blue huckleberry phase

(ABLA/XETE-VAGL)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²	Average duff depth:	1.1 in 2.79 cm	Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain
0-0.25	0.4	0.09	Average diameter, 3 + fuels:	8.3 in	Rate of Spread: medium
0.25-1	1.9	0.43		21.08 cm	Intensity: medium
1-3	2.5	0.56	Percent rotten, 3 + fuels:	17 %	Torching: low
			Volume of sound 3 + fuels:	1441 ft ³ /ac 100.8 m ³ /ha	Crowning: low
Subtotal 0-3	4.8	1.08	Resistance to control: low		
3-6	1.6	0.36	Overall Fire Potential LOW		
6-10	2.9	0.65	STAND LOCATION		
10-20	5.4	1.21	National Forest: Lolo		
20+	11.9	2.67	Ranger District: Missoula		
			Drainage: Gilbert Cr.		
SUBTOTAL 3+	21.8	4.89	Photo taken: 6/23/77		
TOTAL	26.6	5.97	By: W. C. Fischer		
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	Remarks: Fire Ecology Group Eight		
G		10			



DATA SHEET

Stand No. 48

FOREST COVER TYPE: SAF NO. 210 Interior Douglas-fir

MONTANA HABITAT TYPE: NO. 283 Douglas-fir/blue huckleberry-beargrass phase (PSME/VAGL-XETE)

DOWN & DEAD WOODY FUEL LOADINGS		OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	Weight T/ac kg/m ²	Average duff depth: 1.2 in 3.05 cm		Based on an average bad day: 85-90 ° temp., 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0-0.25	0.2 0.04	Average diameter, 3 + fuels: 7.4 in		Rate of Spread: low	
0.25-1	1.1 0.25	18.80 cm		Intensity: medium	
1-3	1.9 0.43	Percent rotten, 3 + fuels: 90 %		Torching: medium	
		Volume of sound 3 + fuels: 326 ft ³ /ac		Crowning: low	
Subtotal 0-3	3.2 0.72	22.8 m ³ /ha		Resistance to control: low	
		Overall Fire Potential LOW			
		STAND LOCATION			
		National Forest: Lolo			
		Ranger District: Missoula			
		Drainage: Gilbert Cr.			
		Photo taken: 6/24/77			
		By: W. C. Fischer			
		Remarks: Fire Ecology Group Six			
		STAND AND SITE DATA			
		Age of overstory dominants: PIPO 335 yrs PSME 186 yrs PICO 62 yrs			
		Average slope: 40 % Aspect: northwest Elevation: 5870 ft 1789 m			
		STYLIZED FUEL MODEL			
		SUBTOTAL 3+ 38.8 8.69			
		TOTAL 42.0 9.41			
		NFDRS FUEL MODEL			
		G 10			



DATA SHEET

Stand No. 95

FOREST COVER TYPE: SAF NO.	210	Interior Douglas-fir
MONTANA HABITAT TYPE: NO.	292	Douglas-fir/twinflower-pinegrass phase (PSME/LIBO-CARU)

DOWN & DEAD WOODY FUEL LOADINGS			OTHER FUEL DATA		FIRE POTENTIAL RATING	
Size Class (Inches)	T/ac	Weight Kg/m ²				
0-0.25	0.5	0.11	Average duff depth: 2.2 in 5.59 cm		Based on an average bad day: 85-90 ° temp, 15-20% R.H., 10-15 mi/h wind, 4 weeks since rain	
0.25-1	1.8	0.40	Average diameter, 3+ fuels: 6.1 in 15.49 cm		Rate of Spread: low	
1-3	5.0	1.12	Percent rotten, 3+ fuels: 76 %		Intensity: low	
Subtotal 0-3	7.3	1.63	Volume of sound 3+ fuels: 870 ft ³ /ac 60.9 m ³ /ha		Torching: low	
3-6	10.3	2.31			Crowning: low	
6-10	25.6	5.74			Resistance to control: low	
10-20	9.7	2.17			Overall Fire Potential LOW	
20+	0	0				
SUBTOTAL 3+	45.6	10.22			STAND LOCATION	
TOTAL	52.9	11.85			National Forest: Lolo	
					Ranger District: Missoula	
					Drainage: Gillispie Cr.	
			Age of overstory dominants: 145 yrs PSME		Photo taken: 6/13/78	
			PICO 118 yrs		By: W. C. Fischer	
			Average slope: 10 %			
			Aspect: northeast			
			Elevation: 5550 ft 1692 m			
			Remarks:			
			Fire Ecology Group Six			
NFDRS FUEL MODEL		STYLIZED FUEL MODEL	10			
C						

Fischer, William C.

1981. Photo guide for appraising downed woody fuels in Montana forests: Interior ponderosa pine, ponderosa pine - larch - Douglas-fir, larch - Douglas-fir, and interior Douglas-fir cover types. USDA For. Serv. Gen. Tech. Rep. INT-97, 133 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

Four series of color photographs show different levels of downed woody material resulting from natural processes in four forest cover types in Montana. Each photo is supplemented by fuel inventory data and potential fire behavior ratings.

KEYWORDS: forest fuels, fire behavior, fire hazard, fuel appraisal

The Intermountain Station, headquartered in Ogden, Utah, is one of eight regional experiment stations charged with providing scientific knowledge to help resource managers meet human needs and protect forest and range ecosystems.

The Intermountain Station includes the States of Montana, Idaho, Utah, Nevada, and western Wyoming. About 231 million acres, or 85 percent, of the land area in the Station territory are classified as forest and rangeland. These lands include grasslands, deserts, shrublands, alpine areas, and well-stocked forests. They supply fiber for forest industries; minerals for energy and industrial development; and water for domestic and industrial consumption. They also provide recreation opportunities for millions of visitors each year.

Field programs and research work units of the Station are maintained in:

Boise, Idaho

Bozeman, Montana (in cooperation with Montana State University)

Logan, Utah (in cooperation with Utah State University)

Missoula, Montana (in cooperation with the University of Montana)

Moscow, Idaho (in cooperation with the University of Idaho)

Provo, Utah (in cooperation with Brigham Young University)

Reno, Nevada (in cooperation with the University of Nevada)

